

What is claimed is:

1. A steering and trim system for a marine outdrive comprising:

a marine outdrive having a propeller end for supporting a rotatable propeller and a mounting end for mounting the marine outdrive to a marine vessel;

a support linkage having a first end for attachment to a transom and a second end attached to the marine outdrive adjacent the propeller end thereof;

a steering yoke supported adjacent the first end of the support linkage; and

first and second spaced apart steering actuators, a first end of each of the first and second steering actuators coupled to the steering yoke and a second end of each of the first and second steering actuators being connectable with the transom for facilitating steering of the marine outdrive.

2. The steering and trim system for a marine outdrive according to claim 1, wherein a motor supplies rotational drive to the marine outdrive via a drive shaft, and the drive shaft contains a U-joint which facilitates at least horizontal pivoting movement of the propeller end of the marine outdrive relative to the motor.

3. The steering and trim system for a marine outdrive according to claim 1, wherein the support linkage has a first end carrying a linkage ball assembly and a second end pivotally attached to the propeller end of the marine outdrive, the linkage ball assembly is captively received by a socket assembly of a transom plate, supported by the transom, to facilitate pivoting movement of the support linkage relative to the transom plate.

4. The steering and trim system for a marine outdrive according to claim 1, wherein the support linkage comprises a first arm and a second arm which are movable relative to one another to facilitate adjustment of a trim of the marine outdrive.

5. The steering and trim system for a marine outdrive according to claim 1, wherein the steering yoke is formed integral with the support linkage.

6. The steering and trim system for a marine outdrive according to claim 3, wherein the first and second steering actuators are coupled to and controlled by a controller such that when the first steering actuator is moved in a first direction,

the second steering actuator is simultaneously moved a corresponding distance in an opposite direction such that the support linkage pivots about the socket assembly of the transom plate and when the first steering actuator is moved in a second direction, the second steering actuator is simultaneously moved a corresponding distance in an opposite first direction such that the support linkage pivots about the socket assembly of the transom plate.

7. The steering and trim system for a marine outdrive according to claim 1, wherein the marine outdrive comprises a main drive shaft coupled to a propeller drive shaft by a U-joint, and a thrust socket supports the main drive while a thrust tube accommodates the propeller drive shaft and the U-joint interconnects the main drive shaft with the propeller drive shaft.

8. The steering and trim system for a marine outdrive according to claim 7, wherein the thrust socket includes a socket assembly and a leading end of the thrust tube, opposite the propeller, accommodates a ball assembly which is captively received by the socket assembly of the thrust socket to facilitate pivoting movement of the propeller end of the marine outdrive relative to the thrust socket.

9. The steering and trim system for a marine outdrive according to claim 1, wherein the support linkage has a first end carrying a linkage ball assembly and a second end pivotally attached to the propeller end of the marine outdrive, the linkage ball assembly is captively received by a socket assembly supported by the transom to facilitate pivoting movement of the support linkage relative to the transom, and the ball and socket assembly of the steering linkage and the ball and socket assembly of the marine outdrive form a pivot axis for the propeller end of the marine outdrive.

10. The steering and trim system for a marine outdrive according to claim 1, wherein the support linkage comprises a fixed length member which prevents adjustment of a trim of the marine outdrive.

11. The marine outdrive system according to claim 1, wherein a lower portion of the thrust tube, opposite the support linkage, supports a skeg.

12. The steering and trim system for a marine outdrive according to claim 1, wherein each one of the first and second spaced apart steering actuators is a

hydraulic assembly, with a first end thereof pivotally supported by the transom and a second end thereof pivotally coupled to the steering yoke.

13. The steering and trim system for a marine outdrive according to claim 1, wherein each one of the first and second spaced apart steering actuators is a screw drive assembly, with a first end thereof pivotally supported by the transom and a second end thereof pivotally coupled to the steering yoke.

14. A marine vessel with a marine outdrive steering and trim system, comprising:

a marine vessel having a transom;

a marine outdrive having a propeller end supporting a rotatable propeller and an opposed second end mounted with the transom of the marine vessel;

a support linkage having a first end attached to the transom and a second end attached to the marine outdrive adjacent the propeller end thereof;

a steering yoke supported adjacent the first end of the support linkage; and

first and second spaced apart steering actuators, a first end of each of the first and second steering actuators coupled to the steering yoke and a second end of each of the first and second steering actuators being connectable with the transom for facilitating steering of the marine outdrive.

15. The marine vessel with the marine outdrive steering and trim system according to claim 14, wherein a motor supplies rotational drive to the marine outdrive via a drive shaft, and the drive shaft contains a U-joint which facilitates at least horizontal pivoting movement of the propeller end of the marine outdrive relative to the motor; and

the support linkage has a first end carrying a linkage ball assembly and a second end pivotally attached to the propeller end of the marine outdrive, the linkage ball assembly is captively received by a socket assembly of the transom to facilitate pivoting movement of the support linkage relative to the transom.

16. The marine vessel with the marine outdrive steering and trim system according to claim 14, wherein the marine outdrive comprises a main drive shaft coupled to a propeller drive shaft by a U-joint, and a thrust socket supports the main drive while a thrust tube accommodates the propeller drive shaft and the U-joint interconnects the main drive shaft with the propeller drive shaft, wherein the thrust socket includes a socket assembly and a leading end of the thrust tube, opposite the propeller, accommodates a ball assembly which is captively received by the socket assembly of the thrust socket to facilitate pivoting movement of the propeller end of the marine outdrive relative to the thrust socket.

17. The marine vessel with the marine outdrive steering and trim system according to claim 14, wherein the support linkage has a first end carrying a linkage ball assembly and a second end pivotally attached to the propeller end of the marine outdrive, the linkage ball assembly is captively received by a socket assembly supported by the transom to facilitate pivoting movement of the support linkage relative to the transom, and the ball and socket assembly of the steering linkage and the ball and socket assembly of the marine outdrive form a pivot axis for the propeller end of the marine outdrive.

18. The marine vessel with the marine outdrive steering and trim system according to claim 17, wherein the first and second steering actuators are coupled to and controlled by a controller such that when the first steering actuator is moved in a first direction, the second steering actuator is simultaneously moved a corresponding distance in an opposite direction such that the support linkage pivots about the socket assembly of a transom plate and when the first steering actuator is moved in a second direction, the second steering actuator is simultaneously moved a corresponding distance in an opposite first direction such that the support linkage pivots about the socket assembly of the transom plate.

19. The marine vessel with the marine outdrive steering and trim system according to claim 14, wherein the support linkage comprises a first arm and a second arm which are movable relative to one another to facilitate adjustment of a trim of the marine outdrive and the steering yoke is formed integral with the first arm of the support linkage.

20. A method of steering a marine outdrive comprising the steps of:
 - supporting a rotatable propeller at propeller end of a marine outdrive, and mounting an opposite end of the marine drive to a marine vessel;
 - attaching a first end of a support linkage to a transom and attaching a second end of the support linkage to the propeller end of the marine outdrive;
 - supporting a steering yoke adjacent the first end of the support linkage;
 - connecting a first end of each of first and second steering actuators with the steering yoke and connecting a second end of each of the first and second steering actuators with the transom such that the first and second steering actuators are spaced apart from one another; and
 - controlling steering of the marine outdrive by simultaneously actuating the first and second steering actuators in opposite directions to cause the support linkage to pivot relative to the transom and steer the marine outdrive.